

For each of the following problems provide a formula and concluding statement with your solution.

1. A strain of yeast cells triples every hour. Suppose there are 60 cells now.
 - a. Write an equation to represent the total number of yeast cells in “t” hours from now.
 - b. How many cells are there 5 hours from now?
2. A school has an enrolment of 1200 students. The student population is expected to grow at a rate of 1.5% each year for the next 10 years.
 - a. What is the growth factor as a decimal?
 - b. Write an equation to represent the total number of students enrolled “n” years from now.
 - c. Calculate the numbers of students enrolled 8 years from now?
3. The Petersons purchased their house for \$30000 in 1970. Since then, the value of their house has increased 5% per year.
 - a. Write an equation to represent the value of the house as a function of “x” the number of years since 1970.
 - b. Find the value of the house in the year 2006.
4. In 1995, Canada’s population was approximately 29.6 million. It was growing at a rate of approximately 1.24% a year.
 - a. Write an equation to represent the population of Canada, y (in millions), as a function of x, the number of years since 1995.
 - b. Graph the equation from part (a). Use values of x from 0 to 100 in steps of 20 years.
 - c. Estimate the doubling time for Canada’s population?
5. The population, P in millions, of Alberta can be modeled by the equation $P = 2.238(1.014)^n$, where “n” is the number of years since 1981.
 - a. What was the population of Alberta in 1981?
 - b. At what annual rate, as a percent, has Alberta’s population been increasing since 1981?
 - c. Estimate the population in 2021. What assumption did you make?
 - d. What factors might affect the accuracy of the model’s estimation of the population?